

WHAT IS CLAIMED IS:

1. A method of reserving access to a shared communication link by a number, n , of devices, comprising:

assigning a plurality, m , of counters to each of said number of devices, each counter counting from a first count value to a second count value;

using the values within the counting range from said first count value to said second count value to uniquely identify each of said number of devices;

pausing a counting operation of a first counter of said plurality of counters, in each of said number of devices, that has the count value identifying a first device of said number of devices, which requests access to said shared communication link.

2. The method of claim 1, further comprising generating a first communication link access request when said first device develops a need to access said communication link and said first counter has the count value identifying said first device.

3. The method of claim 2, wherein said first device generates said first communication link access request.

4. The method of claim 3, further comprising providing access to said communication link for said first device.

5. The method of claim 4, further comprising restarting said first counter when said first device relinquishes access to said communication link.

6. The method of claim 5, further comprising the step of pausing said counting operation of a second counter of said plurality of counters, in each of said number of devices, that has the count value identifying a second device of said number of devices, which requests access to said shared communication link concurrently with said first device.

7. The method of claim 6, further comprising generating a second communication link access request when said second device develops a need to access said communication link and said second counter has the count value identifying said second device.

8. The method of claim 7, wherein said second device generates said second communication link access request.

9. The method of claim 8, further comprising providing said second device a reservation to access to said communication link, which reserved access is gained immediately after said first device relinquishes access.

10. The method of claim 1, further comprising:

assigning each of said plurality, m , of counters to a separate one of an equal number, m , of bus assertion signals used by said number of devices to request access to said common bus;

generating a first communication link access request when said first device develops a need to access said communication link and said first counter has the count value identifying said first device; and

communicating said first access request to a subset of said number of devices using a first bus assertion signal, of said number of bus assertion signals, assigned to said first counter.

11. The method of claim 10, further comprising:

pausing said counting operation of a second counter of said plurality of counters, in each of said number of devices, that has the count value identifying a second device of said number of devices, which requests access to said shared communication link concurrently with said first device;

generating a second communication link access request when said second device develops a need to access said communication link and said second counter has the count value identifying said second device; and

communicating said second access request to a subset of said number of devices using a second bus assertion signal, of said number of bus assertion signals, assigned to said second counter.

12. The method of claim 11, further comprising providing said second device a reservation to access to said communication link immediately after said first device relinquishes access.

13. A method of reserving access to a shared communication link by a number, n , of devices, comprising:

assigning a plurality, m , of counters to each of said number of devices, each counter counting from a first count value to a second count value;

using the values within the counting range from said first count value to said second count value to uniquely identify each of said number of devices; and

for each i^{th} request of up to m requests to access said shared communication link concurrently:

A) pausing said counting operation of an i^{th} counter of said plurality of counters, in each of said number of devices, that has the count value identifying an i^{th} one of said number of devices, which requests access to said shared communication link.; and

B) generating a bus access request when said i^{th} device develops a need to access said communication link and said i^{th} counter has the count value identifying said i^{th} device.

14. The method of claim 13, further comprising providing access to said communication link for a first device of said number of devices that requests access to said communication link concurrently.

15. The method of claim 14, further comprising providing a prioritized reservation to access to said communication link to all other of the up to $m-1$ devices that request access to said communication link concurrently.

16. An apparatus for reserving access to a shared communication link by a number, n , of devices, comprising:

a plurality, m , of counters assigned to each of said number of devices, each counter counting from a first count value to a second count value and using the values within the counting range from said first count value to said second count value to uniquely identify each of said number of devices; and

a plurality of bus assertion signals each used by said number of devices to request access to said communication link, each of said plurality of bus assertion signals coupled to a separate one of said plurality of counters associated with each of said number of devices,

wherein

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a first communication link access request is generated by a first of said number of devices when said first device develops a need to access said communication link and a first of said plurality of counters has the count value identifying said first device;

said first access request is communicated by a first of said plurality of bus assertion signals to a subset of said number of devices;

said first counter associated with each of said subset of devices discontinues its respective counting operation in response to said first bus assertion signal; and

said first counter associated with said first device discontinues its counting operation in response to said communication of said first bus assertion signal.

17. The apparatus of claim 16, wherein said first device is provided access to said communication link in response to said communication of said first bus assertion signal.

18. An apparatus for reserving access to a shared communication link by a number, n, of devices, comprising:

a counter means, having a plurality, m, of counters assigned to each of said number of devices, for counting from a first count value to a second count value with each of said plurality of counters, wherein the values within the counting range from said first count value to said second count value uniquely identify each of said number of devices;

a control means for pausing said counting operation of an i^{th} counter of said plurality of counters, in each of said number of devices, that has the count value identifying an i^{th} one of said number of devices, which requests access to said shared communication link; and

an access requesting means for generating a bus access request when said i^{th} device develops a need to access said communication link and said i^{th} counter associated with said i^{th} device holds a value uniquely identifying said i^{th} device.